Lab Ware Cleaning - Safety Standards and Protocols

SAFETY STANDARDS AND PROTOCOLS

Scrubbing Lab Ware

- Wear Nitrile gloves, lab coat.

Acetone or Hexane Usage

- Wear rubber gloves, blue plastic suit, apron, rubber boots, full-face respirator with organic vapor/particulate cartridges. Turn on fume hood and open window.
- All plastic containers contaminated with sediment or water samples, and lab ware of unknown origin are treated with hexane. All glass containers are treated with acetone.
- Use labeled squirt bottle to apply solvent. Dump used solvent into a collection beaker.
- When beaker is full, dispose of used solvent in transfer bottle. At the end of the session, transfer used solvent to drum.
- DO NOT pour solvent down the sink (small amounts of residual solvent are okay).
- Rinse solvent bottles thoroughly, cross out label, and store for recycling. Discard caps.

Acid Rinsing/Soaking Lab Ware:

- Wear rubber gloves, lab coat, apron, rubber boots, face shield.

Discarding Used Acid

- Wear rubber gloves, lab coat, apron, rubber boots, face shield. Turn on exhaust fan in neutralizing room and open door.
- Before draining acid baths, check "old acid" bottles; at least two should be full. Acid-rinse any acid-only containers. Also confirm that acid neutralization bin is empty, and that there is NaOH in stock.
- Drain acid baths after their third full use (this is considered "old acid").
- Drain and neutralize one acid bath at a time.
- Neutralize acid with solid NaOH. CAUTION!!! This substance is highly corrosive and will burn skin.
- Add small amounts of NaOH, stirring to prevent caking.
- Adjust acid until pH is between 6 and 9.
- Drain neutralizing tank to treatment system (open drain valve only half-way). Close valve when drained.
- Do not hold un-neutralized acid in bin overnight.

Mixing New Acid

- Wear rubber gloves, lab coat, apron, rubber boots, full-face respirator. Turn on fume hood and open window.
- NEVER ADD WATER TO FULL-STRENGTH ACID!
- Fill emptied acid bath half-full with DI water.
- Carefully add 1.5 bottles of concentrated HCl to bath. Top off with DI water to line marked "1.5".
- Rinse acid bottles thoroughly, cross out label, and store for recycling. Discard caps.

- Pipette Baths - acid should be replaced in these baths every 200 pipettes. Fill one pipette bath with old acid, the other with 0.5 bottle of concentrated HCl and deionized water.

CLEANING LAB WARE

1) Basic Lab Ware Procedure (all containers contaminated with sediment or water samples, e.g. beakers, jars, flasks, core tubes, orange caps, centrifuge tubes; containers of unknown origin; various lab ware contaminated with chemicals or samples; bottle caps; lid liners).

- Scrub with dilute Micro solution and rinse well with DI water. Remove any taped-on site labels. Make sure that all traces of dirt are removed.
- Rinse with solvent. Use hexane for plastics or acetone for glass. Jars, bottles, flasks, beakers and cylinders only need the inside rinsed. All other lab ware should have all surfaces rinsed.
- Rinse well with DI water.
- Soak 24 hours in acid bath. For plastic items, make sure they sit overnight to vent before they go into acid. Make sure that all surfaces are covered with acid (eliminate air bubbles, if necessary, and don't stack one item in another unless they float). NOTE: metal items only get swirled in acid, then rinsed and placed in DI bath.
- Rinse well with DI water.
- Soak 24 hours in fresh DI bath. Make sure that all surfaces are covered with water (eliminate air bubbles, if necessary, and don't stack one container in another unless they float).
- Rinse with DI water. (NOTE: Amber bottles and 50-ml glass beakers need a final distilled water rinse.)
- Place in drying oven overnight. Put away when dry (numbered containers go in order). Make sure that containers are upside-down, capped, covered, or bagged as appropriate, and that site labels are removed.

2) Plastic Ware Procedure (for plastic and glass containers and pipettes used in metals or ammonia tests only, i.e. ACID ONLY)

- Rinse with DI water.
- Rinse with old acid (dunk in acid bath that needs to be drained, or fill separate container with old acid from a bottle; dump acid in neutralizing bath when done).
- Rinse with DI water.
- Soak 24 hours in acid bath. Make sure that all surfaces are covered with acid (eliminate air bubbles, if necessary, and don't stack one container in another unless they float).
- Rinse well with DI water.
- Soak 24 hours in fresh DI bath. Make sure that all surfaces are covered with water (eliminate air bubbles, if necessary, and don't stack one container in another unless they float).
- Rinse with DI water.

- Place in drying oven overnight. Put away when dry. Make sure that containers are upside-down, capped, covered, or bagged as appropriate, and that site labels are removed.

3) Screen Tubes

- Gently scrub with Micro solution and rinse well with DI water. Dry overnight before hexane.
- Dip entire dry screen tube into beaker of hexane.
- Rinse well and promptly to avoid melting glue.
- Soak in acid bath for 20 minutes. Acid should flow through screen when removed.
- Rinse well with DI water.
- Soak 24 hours in fresh DI bath.
- Soak 48 hours in 1-micron filtered running seawater.
- Rinse well with distilled water.
- Place in drying oven overnight. Make sure that screens are bagged by mesh size, and that site labels are removed.

4) Jar Lids (from I-Chem-type sample jars, typically ≥250 ml)

- Remove liners and wash separately as in #1. When rinsing with hexane, stack liners in a beaker, pour hexane over them, and swirl.
- Scrub lids extremely well with a toothbrush and Micro solution. Be sure to clean all mud out of threads and grooves. Rinse well with DI water.
- Place in drying oven.
- When dry, check that lids are clean, remove all site labels, fit with clean liners, and screw onto jars. If jars are still dirty, place lids and liners in separate zip-lock bags.
- Plastic jars are fitted with non-Teflon liners. Glass jars are fitted with Teflon liners.

5) Volumetric Pipettes

- Follow procedure 1 or 2. Pipettes go in bath tips-up.
- Large quantities of pipettes can be washed in the pipette baths.

DISHROOM MAINTENANCE

- Be aware of lab ware needs for the following week.
- Tidy up after you use the dish room—rinse and hang brushes, store Micro bottle away from window, discard dirty soap solutions, clean up lab ware and trash on floor, throw away broken glassware in the sharps box.